

WHAT IS CLAIMED IS:

1. A hybrid drive system which transmits output from an internal combustion engine to an output portion and inputs output from a second electric motor to the output portion, the hybrid drive system comprising:
 - a first electric motor;
 - a power distribution planetary gear, the power distribution planetary gear having a first rotation element to which output from the internal combustion engine is transmitted, a second rotation element that is operatively linked with the first electric motor, and a third rotation element that is operatively linked with the output portion; and
 - a transmission interposed between the second electric motor and the output portion.
2. The hybrid drive system according to claim 1, wherein the transmission is an automatic transmission that includes a plurality of speed steps with different transmission paths.
3. The hybrid drive system according to claim 2, wherein the transmission is the automatic transmission which outputs a plurality of decelerated rotations produced by different reduction gear ratios.
4. The hybrid drive system according to claim 3, wherein the transmission has a planetary gear unit that is axially arranged.
5. The hybrid drive system according to claims 4, wherein the first electric motor, the power distribution planetary gear, the second electric motor and the transmission are arranged axially.
6. The hybrid drive system according to claim 4, wherein the planetary gear unit has at least four revolution elements.
7. The hybrid drive system according to claim 6, wherein the planetary gear unit is of a Ravigneaux type.
8. The hybrid drive system according to claim 4, wherein the transmission has at least two friction engagement elements, and the power transmission paths of the planetary gear unit are switched by selecting an actuation of these friction engagement elements, the transmission is housed in a case, the friction engagement elements are a second brake and a first brake that are interposed between the two different elements of the planetary gear unit and the case, and the brakes are arranged in an external diameter side of the planetary gear unit in a surrounding manner.

9. The hybrid drive system according to claim 7, wherein the cases are a motor case and an extension housing, for housing the second electric motor, the transmission is housed within a case space wherein a rear end face of the motor case and a front end face of the extension housing are joined, and one of the first and the second brakes is arranged in the motor case, and the other of the first and the second brakes is arranged in the extension housing.

10. The hybrid drive system according to claim 9, wherein an actuator for actuating one of the second brake and the first brake is arranged in a support portion of the case.

11. The hybrid drive system according to claim 10, wherein the motor case has a partition wall that serves as the support portion on which a bearing for supporting a rotor of the second electric motor is mounted, and the actuator is arranged on the partition wall as overlapping the bearing in the axial direction.

12. The hybrid drive system according to claim 11, wherein the actuator is a hydraulic actuator, the first brake is actuated by the hydraulic actuator, which is arranged on the partition wall of the motor case, and is structured to have a large torque capacity.

13. The hybrid drive system according to claim 10, wherein the actuator is a hydraulic actuator, the hydraulic actuator is arranged in the support portion of the extension housing and has a double piston structure, and the second brake which is actuated by the hydraulic actuator is structured so as to have a small torque capacity as compared with the first brake.

14. The hybrid drive system according to claim 8, wherein the planetary gear unit has a common carrier for supporting a long pinion and a short pinion, and the long pinion has a large-diameter gear and a small-diameter gear, and the short pinion is meshed with the small-diameter gear, a first sun gear, and a first ring gear, and the large-diameter gear is meshed with a second sun gear, and the first sun gear is connected with the rotor of the electric motor, and the common carrier is connected with the output portion, and the first ring gear is connected with the second brake, and the second sun gear is connected with the first brake.

15. The hybrid drive system according to claim 14, wherein the first brake is arranged at the outer radial side of the second sun gear and the large-diameter gear.

16. A vehicle, comprising an internal combustion engine; a drive wheel; and the hybrid drive system according to claim 1, wherein output from the output portion is transmitted to the drive wheel.

17. The vehicle according to claim 16, wherein the internal combustion engine is arranged such that a crank shaft thereof is oriented in a longitudinal direction of a vehicle body and is positioned in a front part of the vehicle body, and in a part behind the internal combustion engine, the first electric motor, the power distribution planetary gear, the second electric motor and the transmission are arranged axially and in the order rearward from the internal combustion engine, and the drive wheel is operatively linked with the output portion is a rear wheel.

18. A vehicle, comprising:
an internal combustion engine;
a drive wheel; and
a hybrid drive system, wherein the hybrid drive system has a first electric motor, a power distribution planetary gear, a second electric motor and a transmission, and in the power distribution planetary gear, output of the internal combustion engine is output to an output portion by controlling the first electric motor, and then, output of the second electric motor is input to the output portion by changing a speed to a plurality of steps in the transmission, and the output portion is operatively linked with the drive wheel.

19. The vehicle according to claim 18, wherein the internal combustion engine is arranged such that a crank shaft thereof is oriented in a longitudinal direction of a vehicle body, in a front part of the vehicle body, and in a part behind the internal combustion engine, the first electric motor, the power distribution planetary gear, the second electric motor and the transmission are arranged axially and in the order rearward from the internal combustion engine, and the drive wheel is operatively linked with the output portion is a rear wheel.